**CellsAlive!**  URL: www.cellsalive.com

Objective: You will look at computer models of cells, learn the functions and the descriptions of the cells and their components.

Navigating the site: Start out at www.cellsalive.com. Scroll down to "How Big is a.." and click on the link that says “Virus, bacterium, immune cell”. Notice also that from this page you can get to the interactive model: the animal cell model, the plant cell model, and the bacterial cell model. You can also use the Contents menu at the top of the page.

**Part A: Bacterial Cell Models** - (Go to the "Cell Biology" link to access this page, or hit your back button. Click on Cell Models, then select “Bacterial Cell Models” Define the following structures:

Cytoplasm -

Pili -

Nucleoid -

Plasma Membrane -

Cell Envelope -

Ribosomes -

Capsule -

Plasmid -

**Part B: Animal Cell Model** - (return to the "Cell Models” page)

For this model, you will need to click on the various parts of the cell to go to a screen that tells you about the parts. Answers to the following questions are found there.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. What do mitochondria do?    2. How big are mitochondria?    3. What does the Golgi Apparatus do?    4. What is the difference between smooth and rough ER?    5. Where is the nucleolus found?    6. What does the nucleolus do?    7. What does the cytoskeleton do?    8. Cytosol goes by what other name?    9. What is the function of the cytosol?    10. What is the function of the lysosome? | Sketch each of the following.   |  | | --- | | Mitochondria | | Lysosome | | Golgi Apparatus | | Rough ER | |

**Part C: Plant Cell Model** - (Switch to the Plant Cell Model Animation)

|  |  |  |  |
| --- | --- | --- | --- |
| 1. What other type of cell has a cell wall?    2. What makes the plant cells green?    3. In plant cells, what does the vacuole do? | Sketch the following   |  | | --- | | Chloroplast | | Vacuole | |

**Part D: Overview**

For the chart below, place a check in the box if the cell has that component.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Plant | Animal | Bacteria |
| Chloroplast |  |  |  |
| Vacuole |  |  |  |
| Ribosome |  |  |  |
| Mitochondria |  |  |  |
| DNA |  |  |  |
| Endoplasmic Reticulum |  |  |  |
| Cell Wall |  |  |  |
| Golgi Apparatus |  |  |  |
| Nucleus |  |  |  |
| Cell Membrane |  |  |  |
| Cytoplasm |  |  |  |

**Part E. Going Farther (if you have to look at a site other than CellsAlive!, please also list the address where you found the information)**

1. Summarize two main differences between Prokaryote cells and Eukaryote cells:
2. What are the main difference between gram positive bacteria and gram negative bacteria?
3. What is an organelle?
4. Compare and contrast DNA, chromatin, and chromosomes:
5. What are the three main parts of the cytoskeleton, and what does each do?
6. Nucleus and nucleolus sound almost the same. What is the difference between them?
7. What are ribosomes and where in a cell would you find them?
8. What is a plasma membrane?
9. What are peroxisomes and secretory vesicles? Which structure mentioned in the lesson are they most similar to?

*Note: if you have any extra time, be sure to look at the Cell Gallery on CellsAlive!*